

### **REMARKS**

Upon entry of this amendment, claims 1-4, 8-16, 20-42, 51-53, 55-57, and 59-80 will be pending in the application. Claims 1, 4, 13, 20, 39-41, 51, 57, and 59 are amended. Claims 5-7, 17-19, 43-50, 54, and 58 are canceled. Claim 80 is added. No new matter is introduced.

Original claims 1-79 are subject to restriction to the following five groups:

Group I, claims 1-5, 8-14, 17, 20-39, 42-50, 59-67, 70, 73, 74, 77, and 79, alleged by the Office to be drawn to an isolated feline T1R3 protein, a nucleic acid encoding that protein, and methods of use;

Group II, claims 1-3, 7-13, 15, 19-38, 40, 42-50, 59-66, 69, 72-74, 76, 78, and 79, alleged by the Office to be drawn to an isolated feline T1R2 protein, a nucleic acid encoding that protein, and methods of use;

Group III, claims 1-3, 6, 8-13, 16, 18, 20-38, 41-50, 59-66, 68, 71, 73, 74, 75, and 78, alleged by the Office to be drawn to an isolated T1R1 protein, a nucleic acid encoding that protein, and methods of use;

Group IV, *claims 51-56*, alleged by the Office to be drawn to a transgenic animal comprising a heterologous nucleic acid encoding a feline T1R protein; and

Group V, *claims 57 and 58*, alleged by the Office to be drawn to an antibody that binds a feline T1R protein.

Applicants traverse the restriction for the reasons provided herein. Nonetheless, to be fully responsive to the requirement for restriction, Applicants hereby elect with traverse the subject matter of Group II for prosecution on the merits. Applicants submit that claim 80 should be included in Group I.

37 C.F.R. § 1.475 provides that “[w]here a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression ‘special technical features’ shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.”

It is asserted by the Office that the claimed subject matter does not relate to a single invention or to a group of inventions so linked as to form a single general inventive concept, *i.e.*, having at least one common technical feature defining a contribution over the prior art. The subject matter of the amended claims share a common technical feature that is novel and inventive in light of the prior art, *i.e.*, the taste receptors of the T1R family of the domestic cat; and, hence, unity of invention exists for the subject matter recited in the amended claims.

The PCT claims were rejected for alleged lack of novelty and inventive step over the references cited in the International Preliminary Examination Report. None of the cited references, however, teaches the sequences of the cat taste receptors T1R1, T1R2, or T1R3 or the subsequences thereof recited by the claims. As explained in the specification at paragraph 0005, in contrast to other organisms for which taste receptors of the T1R family had been previously identified, the cat exhibits a unique taste profile in that it cannot generally taste sweet carbohydrates but can taste L-amino acids. Until the present invention, mechanisms for identifying novel taste stimuli for the domestic cat were limited, for example, to feeding studies, because the molecular features underlying cat taste perception were unknown. Applicant was able to elucidate the novel sequences encoding the feline cat taste receptors T1R1, T1R2, and T1R3. Applicant further determined the functional differences conferred by the distinct sequences of the cat taste receptors. For example, Applicant accounts for the cat's inability to taste (or low preference for) sweet taste stimuli by illustrating that the feline T1R2 does not share the 7-transmembrane conformation of other members of the T1R taste receptor family. The distinct conformation of the T1R2 receptor of the domestic cat does not allow it to dimerize with its dimerization partner, T1R3. *See, e.g.*, paragraph 0027 of the specification. As explained in the specification, the T1R2/T1R3 dimer functions as a receptor considered sweet by other mammals. *See* paragraph 0007 of the specification. In addition, the feline T1R3 receptor contains a threonine at position 64 and a leucine at position 59, another distinction that could account for the cat's indifference toward sweet carbohydrates. *See, e.g.*, paragraph 0024 of the specification. Reference D1 (WO02/064631) and Reference D2 (WO02/30981), which describe the human T1R3 receptor, and Reference D3 (GB2364058), which describes the AXOR79 transmembrane receptor bearing homology to rat taste receptor TR2, fail to teach or suggest to one skilled in the art the sequence differences of the cat taste receptors of the T1R family relative to the

**DOCKET NO.:** MON-0345  
**Application No.:** 10/591,360  
**Office Action Dated:** April 30, 3008

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human T1R receptors and the functionality conferred by those differences. One skilled in the art also would not have been able to predict the novel cat taste receptors from the cited prior art. The rejection for alleged lack of unity of invention should thus be withdrawn.

### **Conclusion**

Applicants believe that the foregoing constitutes a complete and full response to the official action of record. An early and favorable action is accordingly respectfully requested. Should any issues remain upon entry of the present reply, the undersigned may be contacted at 215.564.8978.

Respectfully submitted,

Date: May 30, 2008

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